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Worksheet-1

Pair of Linear Equations in Two Variables

Class X

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1	A boat goes 30 km upstream and 44 km downstream in 10 hours. In 13 hours, it can go 40 km upstream and 55 km down-stream. Determine the speed of the stream and that of the boat in still water.
2	A man travels 370 km partly by train and partly by car. If he covers 250 km by train and the rest by car, it takes him 4 hours. But if he travels 130 km by train and the rest by car, he takes 18 minutes longer. Find the speed of the train and that of the car.
3	A boat covers 32 km upstream and 36 km downstream in 7 hours. In 9 hours, it can cover 40 km upstream and 48 km down-stream. Find the speed of the stream and that of the boat in still water.
4	Two places A and B are 120 km apart on a highway. A car starts from A and another from B at the same time. If the cars move in the same direction at different speeds, they meet in 6 hours. If they travel towards each other, they meet in 1 hours 12 minutes. Find the speeds of the two cars.
5	The length of a room exceeds its breadth by 3 metres. If the length is increased by 3 metres and the breadth is decreased by 2 metres, the area remains the same. Find the length and the breadth of the room.
6	The present age of a woman is 3 years more than three times the age of her daughter. Three years hence, the woman's age will be 10 years more than twice the age of her daughter. Find their present ages.
7	Two years ago, a man was 5 times as old as his son. Two years later his age will be 8 more than three times the age of the son. Find the present ages of the man and his son.
8	In a given fraction, if the numerator is multiplied by 2 and the denominator is reduced by 5, we get $\frac{6}{5}$. But if the numerator of the given fraction is increased by 8 and the denominator is doubled, we get $\frac{2}{5}$. Find the fraction.
9	The sum of numerator and denominator of a fraction is 12. If the denominator is increased by 3 then the fraction becomes $\frac{1}{2}$. Find the fraction.
10	The sum of the digits of a two digit number is 9. If 27 is added to it, the digits of the numbers get reversed. Find the number.

11	<p>Solve for x and y :</p> $\frac{6}{x-1} - \frac{3}{y-2} = 1$ $\frac{5}{x-1} + \frac{1}{y-2} = 2, \text{ where } x \neq 1, y \neq 2$
12	<p>For what value of k will the pair of equations have no solution ?</p> $3x + y = 1$ $(2k - 1)x + (k - 1)y = 2k + 1$
13	<p>Solve for x and y</p> $133x + 87y = 353$ <p>and</p> $87x + 133y = 307$
14	<p>Solve $2x + 3y = 11$ and $2x - 4y = -24$ and hence find the value of 'm' for which $y = mx + 3$.</p>
15	<p>8 men and 12 boys can finish a piece of work in 10 days while 6 men and 8 boys finish it in 14 days. Find the time taken by one man alone and by one boy alone to finish the work.</p>

Answers	1	Speed of boat in still water = 8 km/h Speed of stream = 3 km/h	2	Train: 100 km/hr Car: 80 km/hr	3.	Speed of boat in still water = 10 km/h Speed of stream = 2 km/h	4	Speeds of car are 60 km/h & 40 km/h.
	5	Length=15m Breadth = 12m	6	Women: 33 years Daughter: 10 years	7	Man: 42 years Son: 10 years	8	Fraction is 12/25
	9	Fraction is 5/7	10	Number: 36	11	$x = 4$ & $y = 5$	12	$K = 2$
	13	$x = 2$ & $y = 1$	14	$x = -2, y = 5, m = -1$	15	Man: 140 days Boy: 280 days		